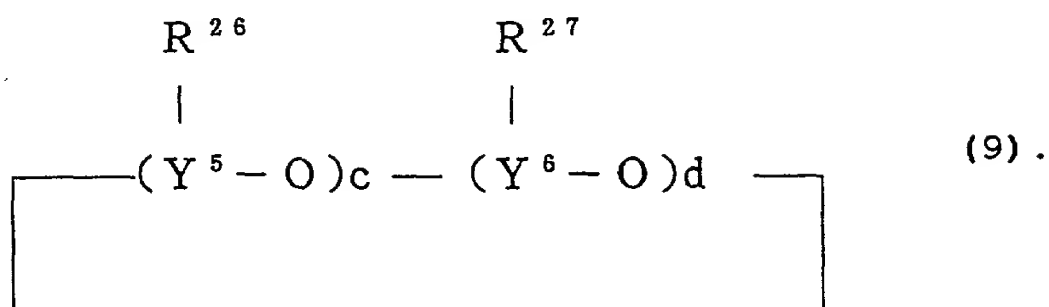


and/or those of a general formula (9):



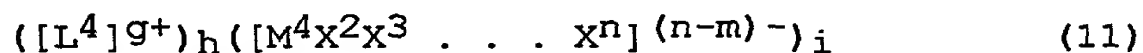
In formulae (8) and (9), R^{21} to R^{27} each represent an alkyl group having from 1 to 8 carbon atoms, concretely including a methyl group, an ethyl group, an n-propyl group, an isopropyl group, all types of butyl groups, all types of pentyl groups, all types of hexyl group, all types of heptyl groups, and all types of octyl groups. R^{21} to R^{27} may be the same or different; and R^{26} and R^{27} may be the same or different. Y^2 to Y^6 each represent an element of Group 13 of the Periodic Table, concretely including B, Al, Ga, In and Tl. Of these, preferred are B and Al. Y^2 to Y^4 may be the same or different; and Y^5 and Y^6 may be the same or different. a to d each indicates a number of from 0 to 50, but (a + b) and (c + d) each must be

at least 1. a to d each preferably falls between 1 and 20, more preferably between 1 and 10, even more preferably between 1 and 5.

As the oxygen-containing compound for the catalyst component, preferred are alkylaluminoxanes. Preferred examples of the compound are methylaluminoxane and isobutylaluminoxane.

(b) Compound capable of reacting with a transition metal compound to form an ionic complex:

The compound capable of reacting with a transition metal compound to form an ionic complex includes coordination complex compounds that comprise an anion with plural groups bonded to a metal, and a cation, and Lewis acids. Known are various coordination complex compounds that comprise an anion with plural groups bonded to a metal, and a cation. For example, compounds of the following general formula (10) or (11) are preferably used in the invention.



wherein L^4 indicates M^5 , $R^{28}R^{29}M^6$ or R^{30}_3C , which will be mentioned hereinafter; L^3 represents a Lewis base; M^3 and M^4 each represent a metal selected from Group 5 to Group 15 of the Periodic Table; M^5 represents a metal selected from Group 1, and Group 8 to Group 12 of the Periodic Table; M^6 represents a metal selected from Group 8 to Group 10 of the Periodic Table;

X^2 to X^n each represent a hydrogen atom, a dialkylamino group, an alkoxy group, an aryloxy group, an alkyl group having from 1 to 20 carbon atoms, an aryl group having from 6 to 20 carbon atoms, an alkylaryl group, an arylalkyl group, a substituted alkyl group, an organometalloid group, or a halogen atom; R^{28} and R^{29} each represent a cyclopentadienyl group, a substituted cyclopentadienyl group, an indenyl group, or a fluorenyl group; R^{30} represents an alkyl group; m indicates the valency of M^3 or M^4 , and represents an integer of from 1 to 7; n represents an integer of from 2 to 8; g indicates the ion valency of L^3-H or L^4 , and represents an integer of from 1 to 7; h represents an integer of 1 or more; and $i = h \times g / (n-m)$.

Specific examples of M^3 and M^4 include atoms of B, Al, Si, P, As, Sb, etc.; those of M^5 include atoms of Ag, Cu, Na, Li, etc.; and those of M^6 include atoms of Fe, Co, Ni, etc. Specific examples of X^2 to X^n include a dimethylamino group, a diethylamino group, etc., as a dialkylamino group; a methoxy group, an ethoxy group, an n-butoxy group, etc., as an alkoxy group; a phenoxy group, a 2,6-dimethylphenoxy group, a naphthyloxy group, etc., as an aryloxy group; a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, an n-octyl group, a 2-ethylhexyl group, etc., as an alkyl group having from 1 to 20 carbon atoms; a phenyl group, a p-tolyl group, a benzyl group, a pentafluorophenyl group, a 3,5-di(trifluoromethyl)phenyl group, a 4-tert-